

### **REMARKS**

The following remarks are in response to the Examiner's Action dated 6 February 2006.

Applicants have amended the claims. Claims 20 and 22-24 have been cancelled. The claims now relate only to a polyolefin with a grafted unmodified cyclodextrin. The amendments to claim 16 is supported in the specification at least at page 3, line 24; page 4, lines 10-11; page 5, lines 23-24; page 6, line 26 - page 7, line 1; page 12, lines 30-31; page 15, lines 24-26; page 22, lines 14-18; page 23, lines 5-8 and the claims as filed. The amendment to claim 82 is supported in the specification at least at page 4, lines 11-16; page 7 lines 9-10; page 24, lines 5-7, 19-22, 29-31 to page 25 line 1; page 29, lines 19-22 and 29-31 to page 30, line 2 and in the claims as filed. No new matter has been inserted. New claim 161 recites that the grafted polymer in the chip comprises about 0.01 to 10 wt% of the chip based on the ungrafted polymer. Support for the amendment is found at page 6, lines and in the original claims.

Applicants thank the Examiner for withdrawal of the double patenting rejections.

### **Claim Rejections under 35 U.S.C. § 103(a)**

In paragraphs 1 and 2 of the Examiner's Action, the Examiner rejects the claims under 35 U.S.C. § 103(a) over Wood et al., U.S. Patent No. 5,882,565 substantially as in previous actions. Applicants do not acquiesce in the Examiner's position that the Wood '565 reference teaches a cyclodextrin grafted polyolefin. Applicants have amended the claims in order to distinguish the art and to promote this application. Applicants traverse to the extent it is maintained in light of the amended claims.

In paragraph 3 of the Examiner's Action, the Examiner points out that claim 16 could read on a backbone polymer grafted with a compatible cyclodextrin such as the modified or substituted cyclodextrins of the Wood '565 patent. Applicants have amended the claims to exclude this aspect from the claims if such a material is actually covered. Applicants respectfully submit that the amended claim 16 no longer reads on Wood '565. Claim 16 specifically refers to a grafting reaction product of an acid anhydride containing polymer and an unmodified cyclodextrin to produce the cyclodextrin grafted polymer. Applicants submit that the subject matter of claim 16 as amended is not obvious under 35 U.S.C. § 103(a) in light of Wood '565. The Wood '565 disclosure is substantially directed to cyclodextrin modification by

small molecule groups such as acyl, amino and alkyl. In the current application, cyclodextrin is modified through an acyl substitution; however, this substitution results in functionalization of a single cyclodextrin molecule by thousands to millions of carbons depending on the molecular weight of the polymer. By contrast, Wood '565 does not teach use of a maleic anhydride modified polymer and contemplates modification of cyclodextrin via acyl groups such as acetyl, butyryl, and the like. Even persubstitution of a higher molecular weight acyl group, for example a lignoceryl (C24) group, on  $\gamma$ -cyclodextrin (8-membered ring) would result in a total of 576 carbons bonded to a  $\gamma$ -cyclodextrin molecule. The addition of 576 noncontiguous carbons to a  $\gamma$ -cyclodextrin molecule will not impart polymer-like properties; therefore, in order to make a product with cyclodextrin functionality and polymer-like properties, one would have to blend the modified  $\gamma$ -cyclodextrin into a polymer matrix.

The Examiner has acknowledged that the reaction of a cyclodextrin with a grafted polyolefin and the reaction of a compatible cyclodextrin with a polyolefin are different processes. In the current invention, unmodified cyclodextrin is grafted directly to the polymer matrix, obviating the need for modification in order to make the cyclodextrin compatible with the polymer matrix. Modification to impart such compatibility is the teaching of the Wood '565 patent. Wood '565 cannot be said to teach or suggest the grafting of unmodified cyclodextrin directly onto the polyolefin via reaction with acid anhydride groups present in the polyolefin.

Based on the above amendment and above argument, Applicants respectfully request that the rejection be withdrawn.

The Examiner also points out that claim 30 reads on a cyclodextrin that was modified prior to reaction with a polyolefin. Applicants understand the Examiner's statements, and in response have cancelled claim 30.

The Examiner also points out that claim 82 could be read to incorporate a cyclodextrin modified prior to grafting to the backbone carbon of the polymer through acid anhydride residue. Applicants understand the Examiner's statement, and have amended claim 82. Applicants respectfully submit that the amended claim 82 no longer reads on Wood '565 as discussed above. Claim 82 also now specifically refers to an unmodified cyclodextrin bonded to a backbone carbon of the polymer through a maleic acid residue, or to a carbon in a pendent group through a maleic acid residue. Applicants respectfully request that the rejection be withdrawn.

The Examiner contends that the claims are drawn to a product by process, wherein no process step provides an unmodified cyclodextrin grafted to a functionalized polyolefin. Applicants submit that all claims as amended read on processes to graft unmodified cyclodextrin to an acid anhydride functionalized polyolefin. Applicants respectfully request that the rejection be withdrawn.

In view of the above amendments and remarks, all claims are now in condition for allowance. Applicants respectfully request a Notice of Allowance. If the Examiner believes a telephone conference would advance the prosecution of this application, the Examiner is invited to telephone the undersigned at the below-listed telephone number.

Respectfully submitted,

13 Mar 2006  
Date

Mark DiPietro  
Mark DiPietro  
Reg. No. 28,707  
MERCHANT & GOULD P.C.  
P.O. Box 2903  
Minneapolis, MN 55402-0903  
Telephone: (612) 371-5375  
E-mail: mdipietro@merchant-gould.com



K:\clients\1111816\56USU1\Amendment and Response MJD Draft 031006.doc